

### **REMARKS/ARGUMENTS**

In the Office Action mailed August 1, 2008 in relation to the above application, the Examiner has rejected each of Claims 1 to 20 now of record:

1. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph.
3. Claims 10-20 are rejected under 35 U.S.C. 103(a).
4. Claims 1-20 are rejected on the ground of nonstatutory obviousness-type double patenting

The instant application as filed contained claims 1-20. Claims 1-20 are hereby cancelled and new claims 21-29 are added. Applicant submits herewith, new Claims 21 to 29, in which independent Claims 21 replaces former independent Claims 1, and dependent Claims 22 to 29 substantially correspond to Original dependent Claims 2-9. Original claims 10-20 have been cancelled. The new claims 21-29 do not introduce new matter and are fully supported by the Original specification as filed, specifically the original claims. Applicant addresses the rejections as they apply to the new claims 21-29. Applicant respectfully submits that these claims address and overcome each of the Examiner's objections, for the following reasons, presented in the order raised by the Examiner.

#### **Rejection of Claims 1 to 20 under 35 USC § 112**

The Examiner has stated that Claims 1 and 10 are indefinite due to lack of clarity and lack of antecedent basis, in relation to the terms "increasing" and "sorbent", and in relation to the nature of the limitation of the "fluidized bed". In new independent Claim 21, the term "increasing" no longer appears, and the features of the sorbent and the fluidized bed are properly and clearly introduced in the body of the claim, in full conformity with the requirements of 35 USC 112, thereby overcoming the rejection in relation to this claim.

In relation to the terms "spent sorbent" and "uncaptured carbon dioxide" in Claim 12, these terms no longer appear in the claims.

In relation to Claims 28 and 29 (replacing former Claims 8 and 9), each of these new claims defines a feature of the fluidized bed. As this term is properly introduced in independent Claim 21, Applicant submits that the objection is now moot.

As each of the indefiniteness objections to former Claim 1 has been addressed in new independent Claim 21, the objection to the remaining dependent claims as being dependent on indefinite claims is now moot.

The Applicant asserts that the claims fully comply with the requirement of 35 U.S.C. § 112, second paragraph. Accordingly, Applicant respectfully requests withdrawn all 35 U.S.C. § 112 rejections.

#### **Rejection of Claims 1 to 18 under 35 USC § 103(a)**

The Examiner has rejected each of the claims 1-18 as allegedly obvious from Shimizu et al. in “A Twin Fluid-Bed Reactor for Removal of CO<sub>2</sub> from Combustion Processes” (hereafter referred to as “Shimizu”) in view of Gupta et al. in “Carbonation-Calcination Cycle” (2002) (hereafter referred to as “Gupta”); and Anthony et al. in “Pacification of high calcic residues” (2000) (hereafter referred to as “Anthony”). Applicant addresses the rejection as applied to the new claims.

Applicant respectfully submits that Original Claims 10 to 20 have been cancelled; and that the references, alone or in any combination, do not teach or suggest each of the features of new independent Claim 21. Applicant submits that the rejection under 35 USC 103(a) does not relate to newly presented Claims 21 to 29, which are of substantially the same scope as original Claims 1 to 9, against which no rejection has been made.

Applicant respectfully submits that the combination of prior art references does not establish obviousness under 35 USC 103(a). Specifically, none of the references (Shimizu or Gupta or Anthony) alone or in combination recognizes or in any manner raises the issue of loss of effectiveness of the sorbent after repeated use; much less does any of the references indicate or suggest any manner of addressing this issue, in particular by the steps of the method of the present invention as defined in new independent Claim 21 and dependent Claims 22 to 29. KSR International Co. v. Teleflex Inc. (ISR) requires that an

Examiner provide "some articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness." (KSR Opinion at p. 14). An Examiner must "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does," (KSR Opinion at p. 15). And, the Examiner must make "explicit" this rationale of "the apparent reason to combine the known elements in the fashion claimed," including a detailed explanation of "the effects of demands known to the design community or present in the marketplace" and "the background knowledge possessed by a person having ordinary skill in the art." (KSR Opinion at p. 14). Anything less than such an explicit analysis is not be sufficient to support a prima facie case of obviousness.

The Examiner has asserted that the Shimizu reference teaches a process involving the carbonation of an alkaline earth metal oxide; that the Gupta reference teaches the concept of an improved sorbent created from a hydroxide; and that the Anthony reference teaches "the general conditions required for this route". Applicant submits that the Shimizu reference teaches the general concept of the loop in which the carbonation of an oxide and subsequent separation of carbon dioxide from the oxide occur. The reference does not anywhere discuss the reduced carbonation capacity of a sorbent from repeated use, nor the solution provided by the present invention. Nor does either of the other two references raise or attempt to address this issue. The combination of Shimizu and Gupta and Anthony fail on all counts to establish a prima facie case of obviousness.

The combination of Shimizu and Gupta and Anthony fail to teaches or suggests the hydration of the sorbent in the manner of the present invention, in particular as claimed in new Claim 21. For example, Gupta discloses the preparation of a specialty material, i.e. the synthesis of high surface area precipitated calcium carbonate; but the reference contains no teaching of hydration within a process such as that of the present invention. Similarly, Anthony is directed at controlling the release of sulphur present in ash from fluidized bed combustion, and in particular at temperatures below 450°C; whereas the carbonation in the method of the invention is performed at temperatures of at least 600°C. Having regard to the significant differences between the features of the invention as defined in the amended claims submitted herewith, and the teachings of the three cited references, none of Claims

21 to 29 can be regarded as obvious from any of these references alone or in combination.

Accordingly, Applicant respectfully submits that the new claims, are not obvious over the referenced art and are, therefore, allowable under 35 U.S.C. § 103(a). Applicant respectfully requests that the rejection be withdrawn.

**Double patenting rejection**

The Examiner rejects the instant application (10/577,540) based on a provisional obviousness-type double patenting based on of co-pending application “10/577,540” (sic) – i.e. the present application. Applicant assumes that the Examiner intended to refer to co-pending application 10/577,542. To expedite the prosecution of this application, Applicant herewith submits a terminal disclaimer in respect of co-pending application US 10/577,542.

Applicant herewith submits a terminal disclaimer in respect to co-pending application US 10/577,542 to overcome this rejection.

**Conclusion**

Applicant has added new claims 21-29 that correlate to claims 1-20 and applied the rejections of record to those new claims. In light of the remarks and arguments presented above, Applicant respectfully submits that the claims 21-29 in the instant Application are in condition for allowance. Favorable consideration and allowance of the pending claims 21-29 are therefore respectfully requested.

If the Examiner has any questions or comments, or if further clarification is required, it is requested that the Examiner contact the undersigned at the telephone number listed below.

Dated: January 30, 2009.

Respectfully submitted,



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